

RS31325 – 16V, 12A Dual-Input Power MUX with 16A Parallel Operation

Features

High-Performance Power Path

- 2.95V to 16V operating input range
- Dual-input or parallel operation
- 12A continuous output current in dual-input operation
- 16A continuous output current in parallel operation
- Low 12mΩ typical on-resistance per channel
- Integrated back-to-back MOSFETs for reverse-current blocking

Flexible Power MUX Control

- Priority-based input-source selection
- Independent enable control for both channels
- Fast reverse-current blocking and recovery
- Adjustable output soft-start time

Monitoring and Protection

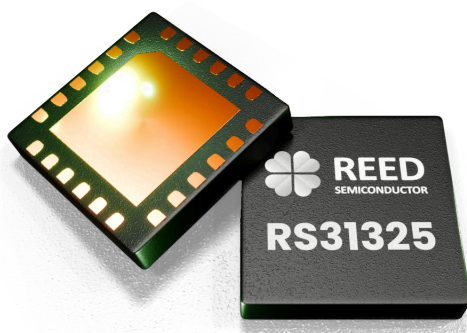
- $\pm 2\%$ current-monitor accuracy
- Adjustable current limit
- Fault indication
- Input undervoltage and overvoltage protection (UVP/OVP)
- Overcurrent protection (OCP)
- Overtemperature protection (OTP)
- Selectable latch-off or auto-retry fault response

Package

- Compact 4mm × 4mm, 25-pin LGA package
- RoHS compliant and Green

Applications

- Multiple and Redundant Power Sources
- Battery and Adapter Power Selection
- Backup and Standby Power
- Power-Path Management
- Servers and Networking Equipment
- Surveillance Systems
- Telematics and Tracking Systems



Description

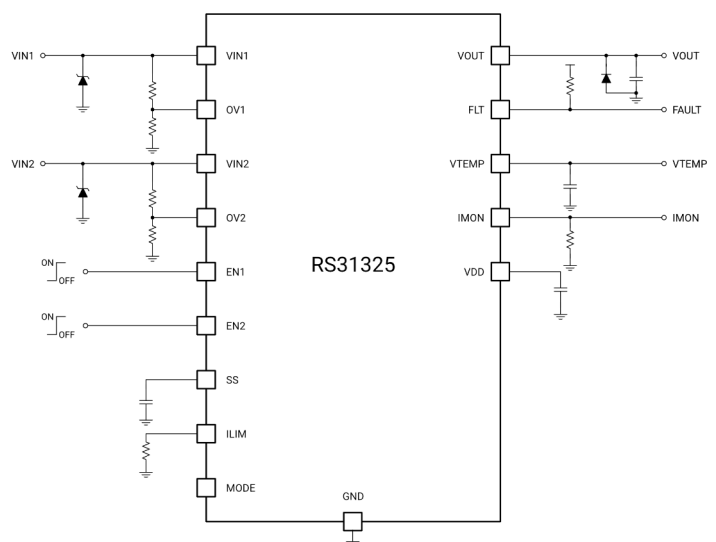
The RS31325 is a dual-channel Power MUX designed for high-current power-path management with selectable dual-input or parallel operation. Operating from 2.95V to 16V, the device supports up to 12A continuous output current in dual-input operation and up to 16A continuous output current with both channels operating in parallel. Integrated back-to-back MOSFETs provide 12mΩ typical on-resistance per channel and reverse-current blocking.

In dual-input mode, VIN1 and VIN2 can be connected to different power sources, with one channel conducting during normal operation. In parallel mode, both channels can be connected to the same input source to increase output-current capability. The channels provide synchronized soft-start, turn-off, and fault response, with current sharing between the two power paths.

The RS31325 integrates a $\pm 2\%$ accurate current monitor, adjustable current limiting, output soft-start, and fault indication. Integrated protection includes input overvoltage, output short-circuit, and overtemperature protection, with selectable latch-off or auto-retry fault response.

The RS31325 is offered in a compact 4mm × 4mm, 25-pin LGA package and is well suited for servers, networking equipment, computing systems, and other high-current power-path applications.

Typical Application Schematic



Ordering Information

PART NUMBER	PACKAGE	SIZE	MSL RATING	SHIPPING METHOD	PACKAGE MARKING
RS31325R	LGA-25	4 × 4mm	Level-3	5000u Tape & Reel	R31325

Top Marking



Line 1

- RS: Prefix of Reed Semiconductor (R is replaced by E for engineering lots)
- YY: Year code
- WW: Week code

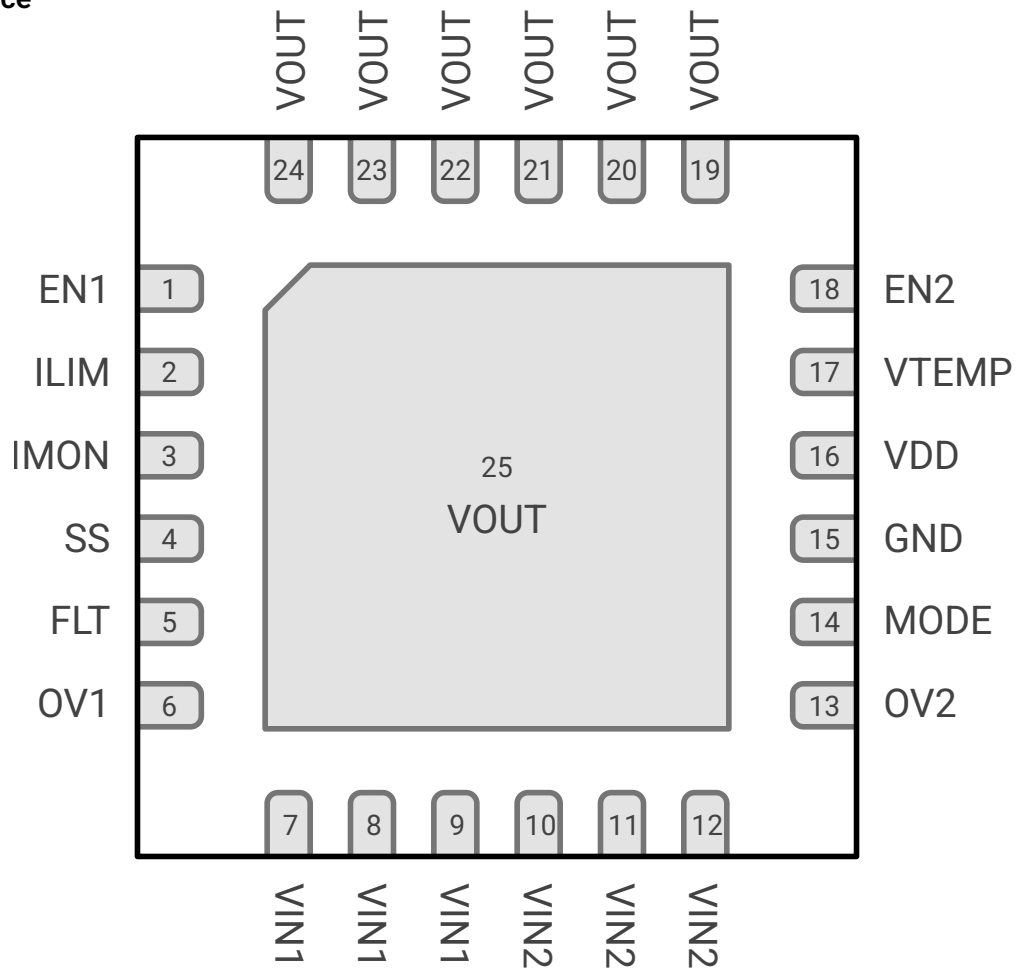
Line 2

- PPPPP: Truncated part number

Line 3

- LLLLL: Lot code
- S: Assembly site code

Package Reference



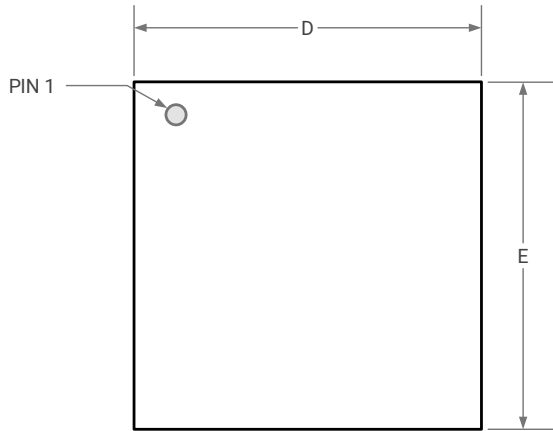
LGA-25 (4x4mm)

Pin Descriptions

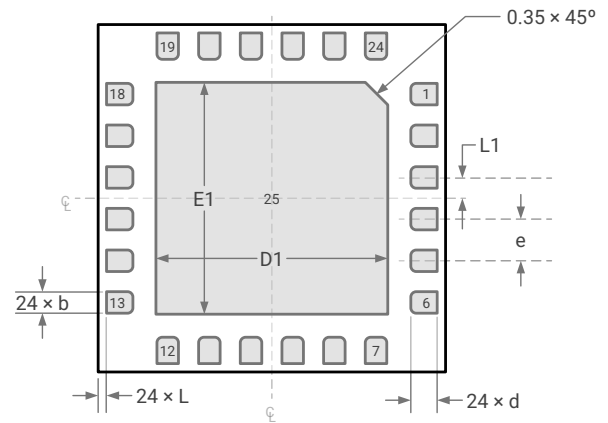
PIN	NAME	TYPE	DESCRIPTION
1	EN1	I	Channel 1 enable input. Drive high to enable CH1; drive low to disable CH1.
2	ILIM	I	Current-limit configuration input. Connect a resistor from ILIM to GND to set the current-limit threshold for both channels.
3	IMON	O	Current-monitor output. Connect a resistor from IMON to GND to convert the output current source (10 μ A/A) to a voltage.
4	SS	I	Soft-start configuration input. Connect a capacitor from SS to GND to set the output-voltage slew rate during soft-start.
5	FLT	O	Open-drain fault-indicator output.
6	OV1	I	Channel 1 input overvoltage configuration input. Connect to VIN1 through a resistor divider to set the overvoltage threshold.
7 – 9	VIN1	P	Channel 1 power input. Place a TVS diode between VIN1 and GND to suppress voltage transients during source connection or load-current turn-off.
10 – 12	VIN2	P	Channel 2 power input. Place a TVS diode between VIN2 and GND to suppress voltage transients during source connection or load-current turn-off.
13	OV2	I	Channel 2 input overvoltage configuration input. Connect to VIN2 through a resistor divider to set the overvoltage threshold.
14	MODE	I	Operating-mode configuration input. Selects dual-input or parallel operation and latch-off or auto-retry fault response.
15	GND	G	Device ground.
16	VDD	P	Internal 3.3V LDO output. Connect a 1 μ F or larger decoupling capacitor from VDD to GND.
17	VTEMP	O	Temperature-monitor output. Connect a 1nF to 0.1 μ F capacitor from VTEMP to GND.
18	EN2	I	Channel 2 enable input. Drive high to enable CH2; drive low to disable CH2.
19 – 25	VOUT	P	Power output. Place a Schottky diode between VOUT and GND to clamp negative voltage transients.

Type: I = Input, O = Output, I/O = Bidirectional, P = Power, G = Ground, – = No Connect.

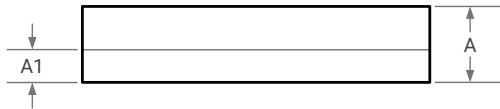
Package Dimensions



TOP VIEW



BOTTOM VIEW



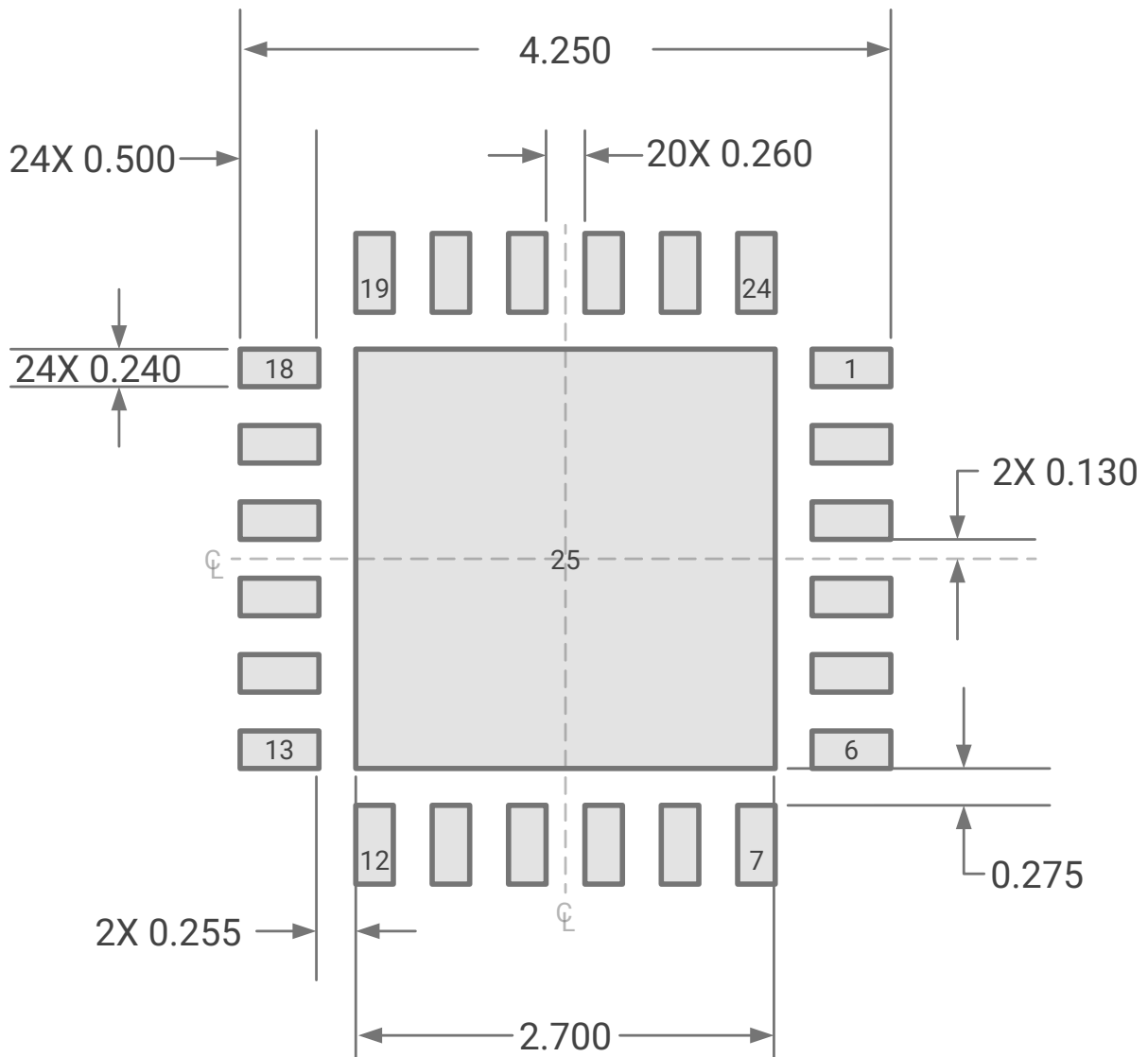
SIDE VIEW

Notes

1. All dimensions are in millimeters.
2. Lead coplanarity shall be 0.1mm maximum.
3. Drawing is not to scale.

REF	MIN	NOM	MAX
A	0.800	0.900	1.000
A1	0.400 Ref.		
D	3.900	4.000	4.100
E	3.900	4.000	4.100
D1	2.600	2.700	2.800
E1	2.600	2.700	2.800
b	0.190	0.240	0.290
e	0.500 BSC		
d	0.300 BSC		
L	0.075 BSC		
L1	0.250 BSC		

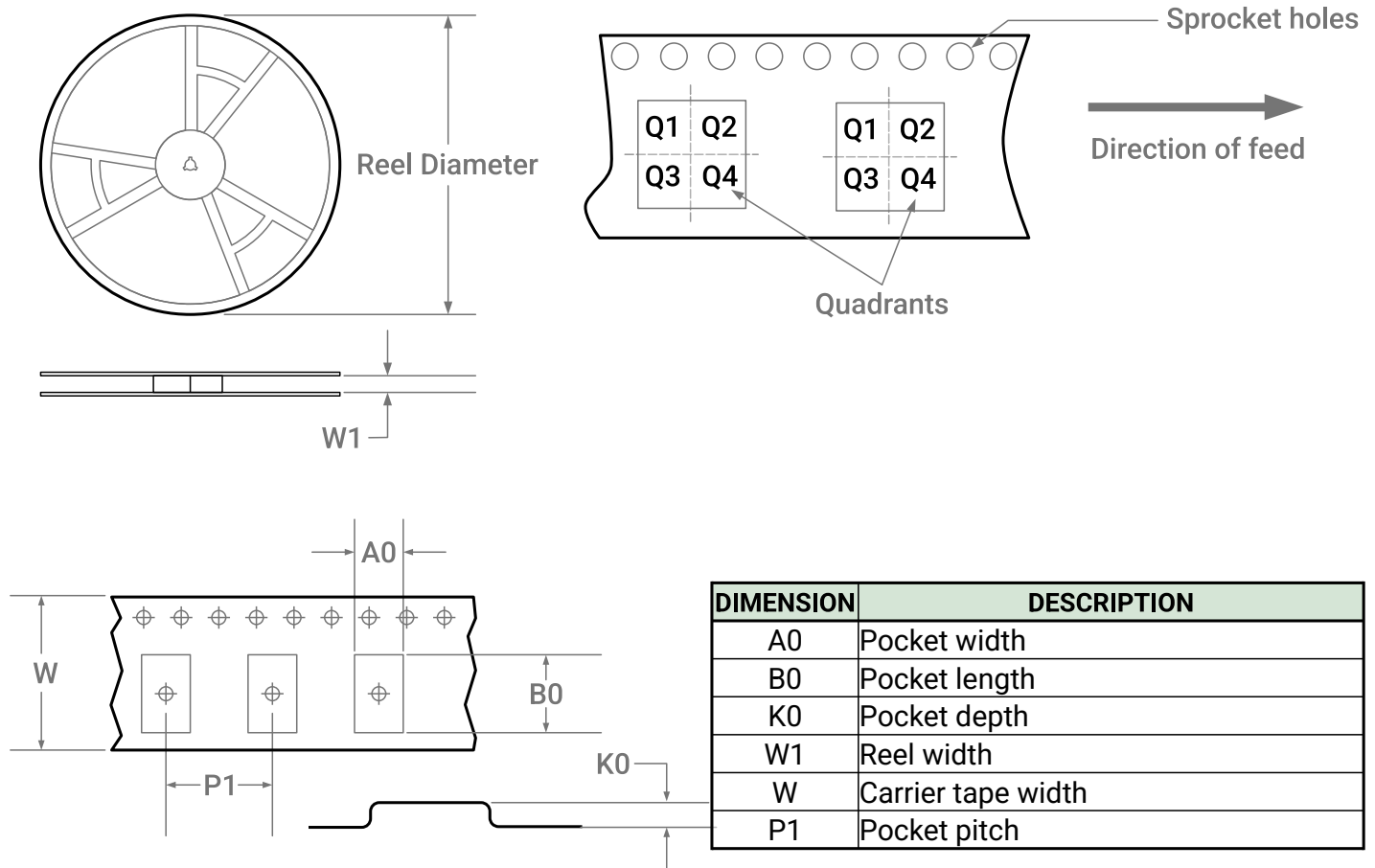
Recommended Land Pattern



Note:

1. All dimensions are in millimeters.
2. Drawing is not to scale.

Tape and Reel Information

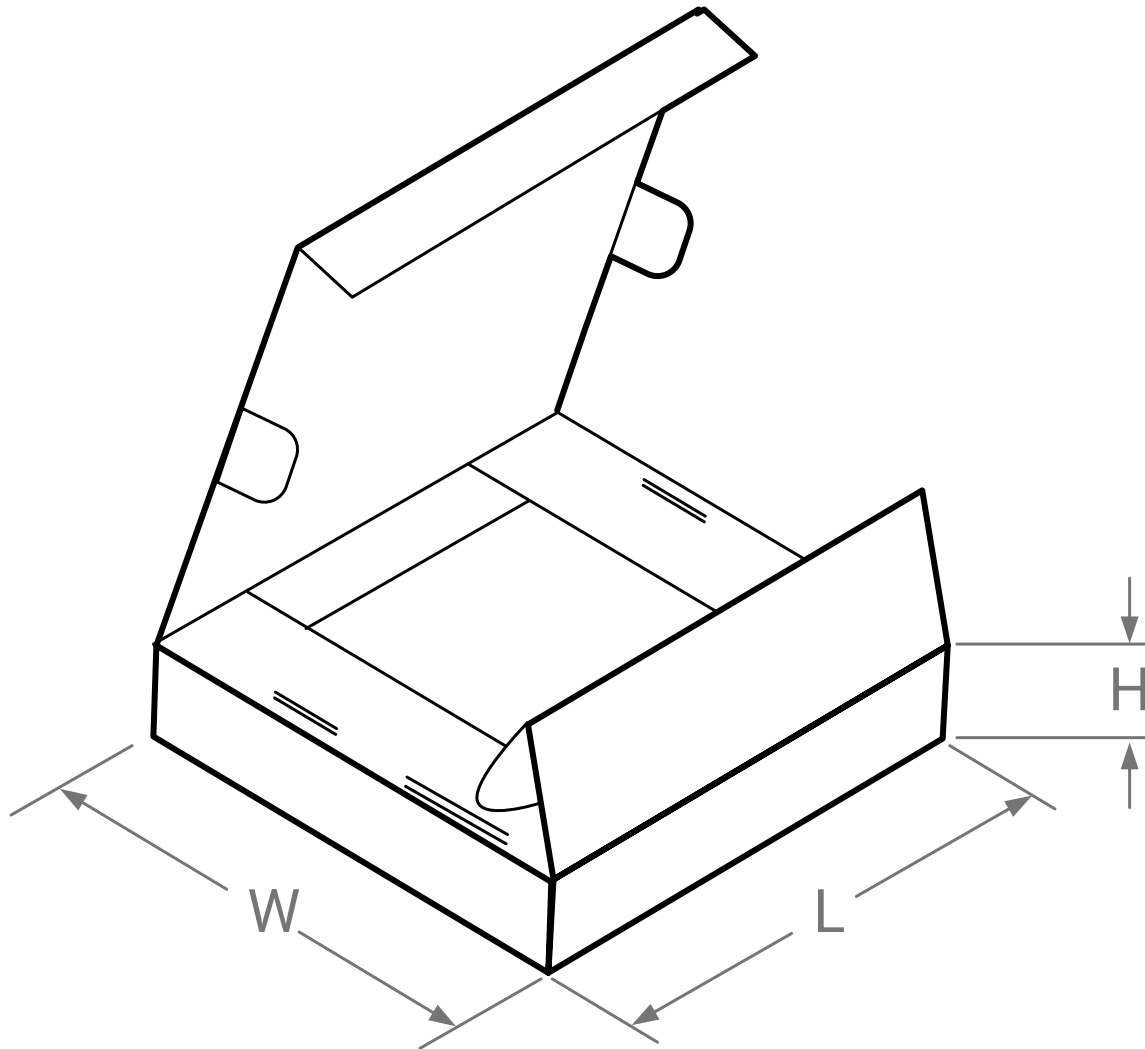


PACKAGE SIZE	REEL DIAMETER	W1	A0	B0	K0	P1	W	QUADRANT
4 × 4	330	12.4	4.2	4.2	1.10	8.00	12.00	Q1

Note:

1. All dimensions are nominal
2. All dimensions are in millimeters (mm)

Pizza Box Dimensions



PACKAGE SIZE	UNITS / BOX	LENGTH	WIDTH	HEIGHT
4 × 4	5000	358	341	50

Notes:

1. All measurements are in millimeters;
2. All measurements are nominal.